

SOIL SURVEY

The National Cooperative Soil Survey
(backbone of NRCS)

Soil survey
began in 1899
-- initially did
the survey work
with horse and
buggy

(Isanti Co.)



Soil scientists used a plane table and alidade to plot soil lines on the base map prior to having aerial photos.

Soil Taxonomy

Scientific name

Common name

Fine-loamy, mixed, superactive,
frigid, Calcic Hapudolls
(scientific name)

(12) Soil orders recognized

- Minnesota is covered by (3) soil orders:
- Mollisols-soils formed under prairie
- Alfisols-soils formed under forests
- Histosols-organic soils

Elevation Map of Minnesota



Profile of Nebish:

Forested Soil

Thin "A" Horizon

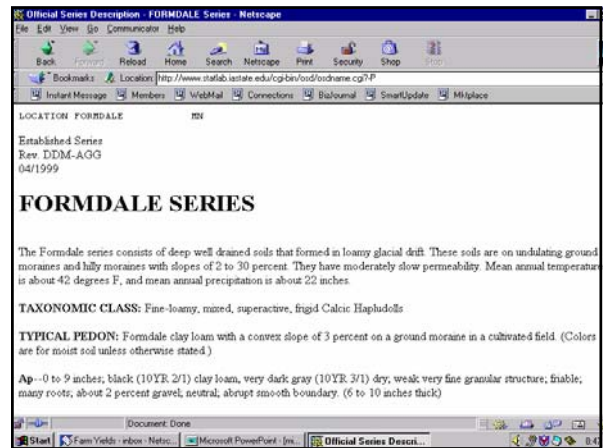
Prominent "E" and "Bt" Horizon



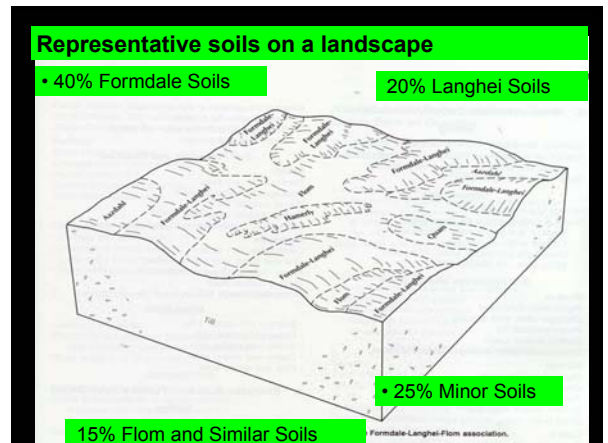
Series Description

(Common name)

Formdale



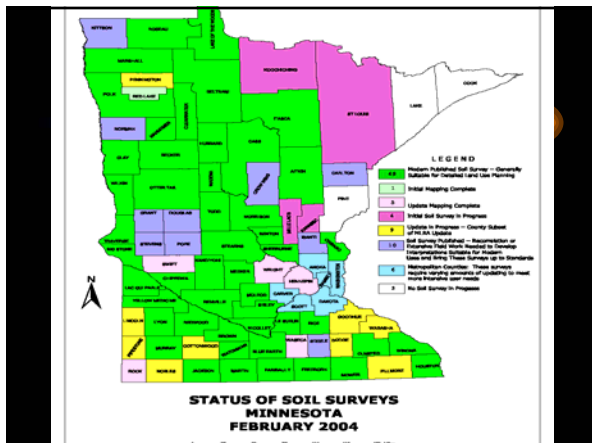
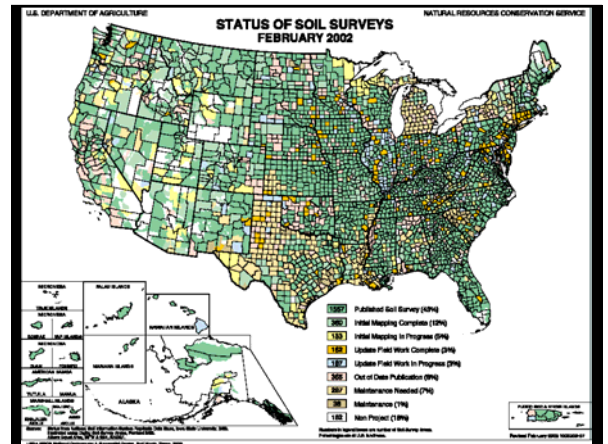
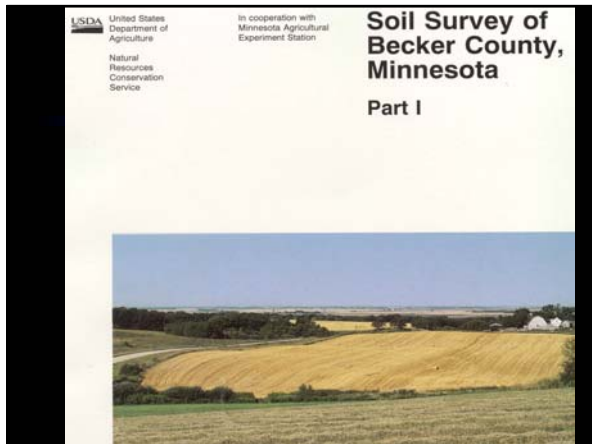
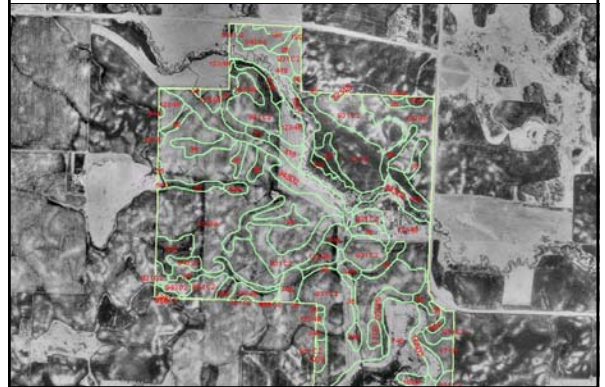
Soils occupy certain positions on the landscape and are predictable



Shoulderslope double convex light colored areas
The darkest areas are depositional areas and also areas with a higher seasonal zone of saturation



Soil map units on aerial photography



Some of the Tools We Use



Hand tools to use in sampling soil for mapping

- Sharpshooter spade
- JMC backsaver push probe
- Closed bucket auger



Giddings Soil Probe Truck

- ATV 4-wheeler helps to move from one point to another in the field
- Makes carrying equipment easier
- Increases the mapping speed



Soil Color

Munsell Color Book

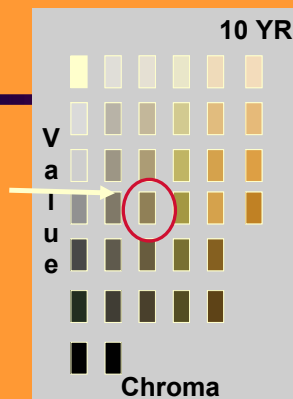
Hue

Value

Chroma

Soil Color

10 YR 5/3



Some areas are mapped and characterized during the winter months

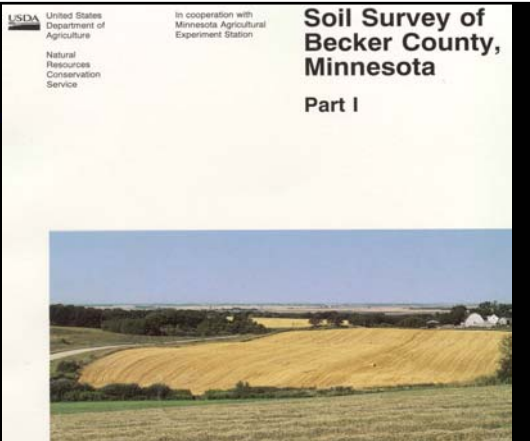
- Bog mapping
- Large areas of organic deposits



McCauley peat
auger works
well in these
areas to capture
samples from
specific depths



Soil survey field sampling to help characterize soil types

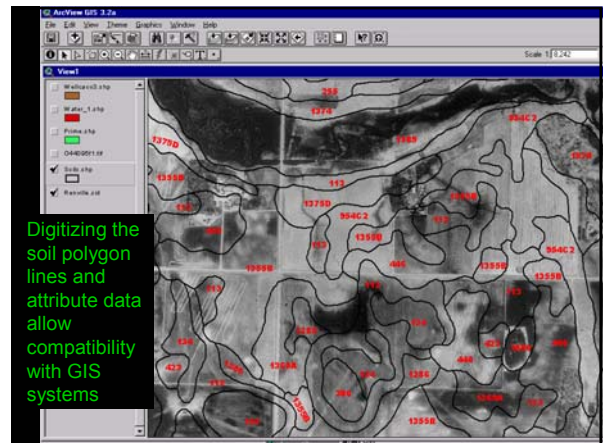


Demand for Digital soil information

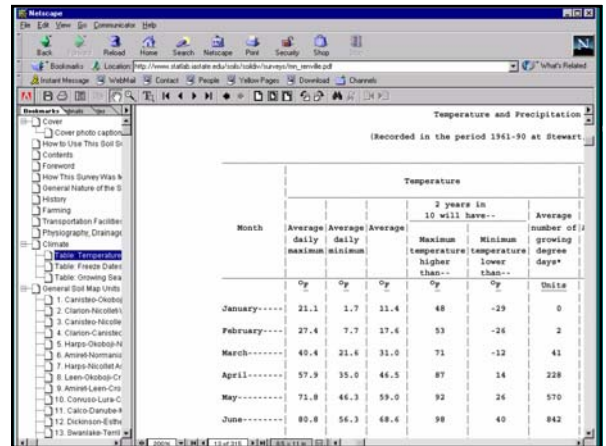
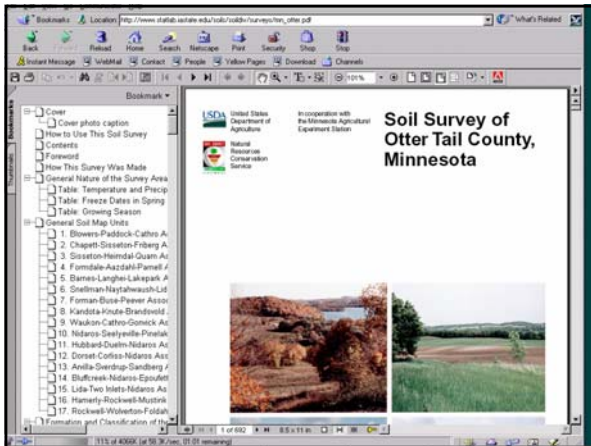
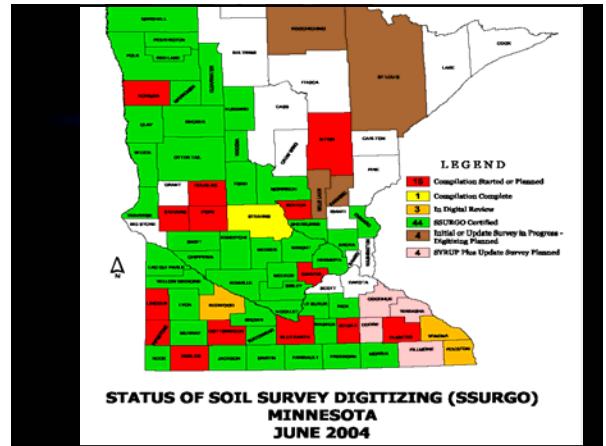
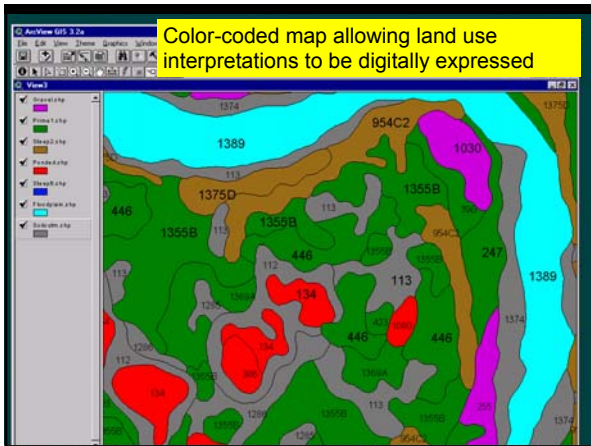
- Digital Resource Data-soil information is the number one request

GIS APPLICATIONS

Overlaying data layers using
Arc-View Software

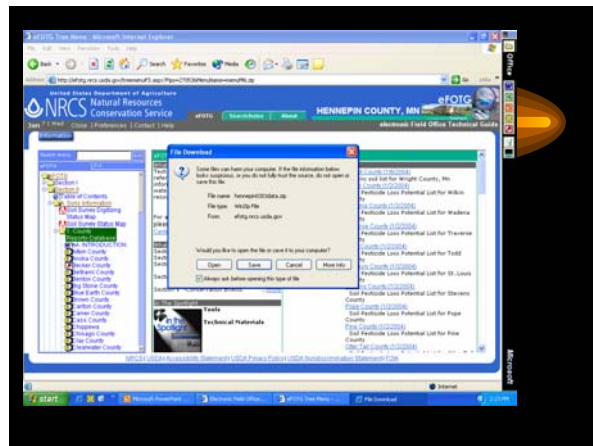
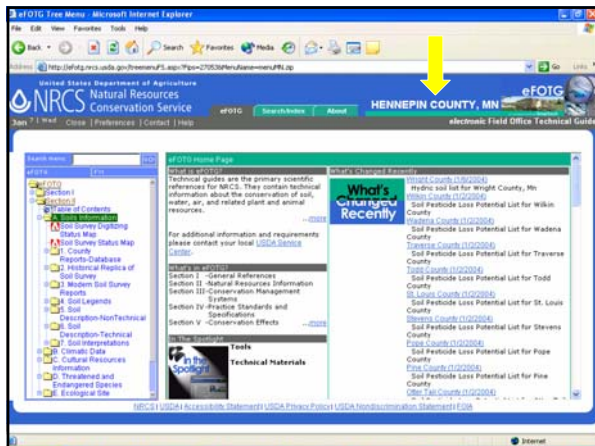


Digitizing the
soil polygon
lines and
attribute data
allow
compatibility
with GIS
systems



How do we use the soil survey?





Nasis Downloads for Soil Data Viewer

MS - Access Template that allows printing soil reports for selected map units or all map units in the county.

